



SAN FRANCISCO DISTRICT

US Army Corps  
of Engineers

# PUBLIC NOTICE

Regulatory Branch  
333 Market Street  
San Francisco, CA 94105-2197

NUMBER: 26912N

DATE: September 24, 2003

RESPONSE REQUIRED BY: October 24, 2003

PERMIT MANAGER: David A. Ammerman

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**1. INTRODUCTION:** The Coast Seafoods Company, 25 Waterfront Drive, Eureka, California 95501, (Contact Mr. Greg Dale, California Operations Manager at 707-442-2947) has applied for a Department of the Army permit to retain unauthorized structures, to maintain existing structures and apparatus, and conduct oyster mariculture operations in navigable waters of the United States (Humboldt Bay), near the Cities of Eureka and Arcata, in Humboldt County, California. See below for a detailed project description. This application is being processed as an individual permit pursuant to the provisions of Section 10 of the Rivers and Harbors Act of 1899 (33 U.S. Code 403) and Section 404 of the Clean Water Act (33 U.S. Code 1344).

**2. PROJECT DESCRIPTION:** As shown in the attached drawings and in accordance with Coast Seafoods' revised Department of the Army permit application dated August 8, 2003, the applicant plans to conduct the planting, grow out (growth of oyster culture), and harvest of Pacific and Kumamoto oysters on approximately 300 acres of Humboldt Bay tidelands at a given crop cycle. Coast Seafoods (herein referred to as "Coast") proposes to convert its mariculture operations in Humboldt Bay from bottom culture of oysters (harvesting oysters with hydraulic dredge and a modified dragline type dredge) to methods using long-line devices (primarily Poly Vinyl Chloride [PVC] pipe-stakes and rope) and rack-and-bag apparatus (although the aquaculture industry refers to these methods as "off-bottom culture," these methods are herein referred to as

"stake" and "rack-and-bag culture," respectively). Coast states that it would reduce its operational mariculture footprint in Humboldt Bay from a maximum of 500 acres during any given crop cycle to 300 acres within any given crop cycle. Coast owns 560.9 acres of Humboldt Bay tidelands and leases another 3,384.5 acres from local agencies (Humboldt Bay Harbor, Recreation and Conservation District and City of Arcata) for a total of 3,945.4 acres all in Arcata Bay (North Humboldt Bay) (See Sheet 1 of 13).

Coast states that it intends to limit stake and rack-and-bag culture to existing culture areas and will not commence oyster culture on any areas of Humboldt Bay not previously subject to oyster cultivation. Coast also proposes a number of operational limitations to minimize its operation's environmental impacts. In addition, Coast will continue ongoing contributions toward several ongoing scientific studies investigating salmonid species in Humboldt Bay and the impacts of various methods of oyster mariculture on the marine environment.

## General Discussion of Oyster Mariculture:

Under this permit application, Coast would completely eliminate bottom culture from its operations and would completely transition to stake and rack-and-bag culture methods on 300 acres of bay tidelands in any given crop cycle. A breakdown of the 300 acres is as follows:

182.14 acres comprised of those beds identified as

“Replanted PLL” (Pacific Long Line, an off-bottom method) on the bed status tables (the bed status tables are on Sheets 9 of 13 and 10 of 13) and as shown on Sheet 1 of 13. This area has already been converted to off-bottom culture. Coast is seeking “after-the-fact” Corps authorization for this conversion.

55.94 acres – comprised of those beds identified as “Kumo Bed “ (Kumo Oysters, also an off-bottom method)(Sheet 1 of 13). This area has been used for off-bottom culture of oysters for almost 30 years, since the early 1970’s. Coast is seeking “after-the-fact” authorization for this conversion.

11.23 acres - comprised of those beds identified as “Rack-and-Bag.” This area has been converted to rack-and-bag culture since 1997. Coast seeks “after-the-fact” authorization for this conversion.

4.81 acres - comprised of that area identified as “Nursery” (Sheet 1 of 13). This area has been used as a nursery since the 1950’s. Coast is seeking “after-the-fact” approval under this permit to continue this use.

0.04 acres - comprised of that area identified as the “FLUPSY” (upwelling tanks)(Sheet 7 of 13). The FLUPSY is located south of the Samoa Bridges and near the west shoreline of Humboldt Bay. See description of the floating upwelling system or FLUPSY below under “Rack and Bag Method (Off-Bottom)”.

0.04 acres - comprised of that area identified as “Wet Storage Floats” on the bed status table. This area has been in its current use since the 1950s. The wet storage floats store recently harvested oysters nearly ready for shipment to wholesalers. Coast seeks “after-the-fact” approval for these floating structures.

0.31 acres - comprised of that area identified as “Clam rafts.” The clam rafts located in this area, as referenced on the bed status table, were previously

installed under a Letter of Permission (Section 10 of the Rivers and Harbors Act) in August of 1997 (Corps File Number 22036N).

45.49 acres - Coast states that the remaining 45.49 acres out of the total 300 acres operational footprint would be comprised of oyster beds designated as “Cleaned Off Ready for Replant Proposed PLL” (Sheets 1 of 13 and 2 of 13). This would be the proposed acreage for planting of oysters as Pacific long line off-bottom culture.

There were 123 acres of former ground culture plots maintained by Coast Seafoods in the past (Sheets 1 of 13 and 2 of 13). The oysters and associated apparatus have already been removed from these plots. These plots are not currently being used for oyster culture. The precise location within these 123 acres of former ground culture beds that would be replanted with long lines would be determined by a majority vote of the Humboldt Bay Mariculture Monitoring Committee. Coast is seeking approval under this permit application to convert this former ground culture area to Pacific long line off-bottom culture.

Mariculture Methods: In the past, Coast has used bottom culture, stake, and rack-and-bag culture methods. Historically, Coast has operated virtually all of its oyster culture as bottom culture. The following project description will first address the general aspects of oyster culture, then the specific process for stake and rack-and-bag culture (particularly the long-line method), and the specific process used in the past for bottom culture (only one remaining area in north Humboldt Bay is being used by Coast for bottom-culture methods).

General oyster culture process:

A. The process of oyster growing starts at Coast’s Quilcene, Wash., oyster hatchery where oysters go through the spawning process. Oysters are

“broadcast spawners,” which release sperm and egg into the water. Upon fertilization, in both the natural and aquaculture process of “setting,” the oyster larvae are mobile for 2-3 weeks and then settle, attaching themselves to a hard surface, preferably oyster shells.

In a multiple-oyster-seed process (as opposed to the development of single oyster seed, discussed later), shells with attached larvae are called “cultch.” Coast bags cultch for seed-setting purposes from shucked oysters (oyster shells are opened by hand in a processing plant). Once the larvae settle on the cultch they cement themselves and remain stationary for the balance of their life cycle. At this stage, they are called “spat” (<0.5 millimeters in size). A bag or group of cultch with spat attached is called “oyster seed.” This seed is set in tanks and later trucked from Quilcene, Wash., to Coast’s Eureka facility.

B. Upon arrival to the Eureka facility, the seed is transported by boat onto Humboldt Bay to intertidal nursery areas located on mudflats (north of Gunther Island and on Arcata Channel, see Sheet 2 of 13). At these nursery areas the seed grows to a less-fragile size and age. This process, “beach hardening,” allows the seed to gain size and strength prior to planting. This process allows the oyster seed to endure physical stress in Humboldt Bay. The seed is allowed to beach harden for several months depending on time of year and seed conditions. The bags of seed are stacked on wooden pallets in order to prevent the bottom of the seed stack from becoming silted in, which would suffocate the oyster seed. The intertidal nurseries at Gunther Island and Arcata Channel are used for long-line culture. The seed is removed from the Gunther Island nursery in small batches on a daily basis and brought to the processing plant of Coast’s Eureka facility.

Individual pieces of cultch are stuck into braids of long-line ropes, re-bagged, taken back to the bay, and either planted in a bed or placed on the Arcata Channel nursery to later be planted. A second nursery (the Arcata Channel location) is needed to

provide a physical separation between the stuck and unstuck seed.

This multiple-oyster-seed process is nearly identical to the process for single-seed culture – up to the point of “setting.” Instead of using a normal oyster shell as cultch, single-seed culture uses a finely ground powdered shell. The powder allows only one individual to attach to each particle of powder. Because a single oyster seed is about the size of a grain of sand, the single oyster seed must be maintained in a different type of nursery – normally in trays or “upwellers.” Coast utilizes a floating upwell system (a.k.a.: FLUPSY) to nurse the oysters from roughly 1400 microns to 5-10 mm. At that size the oysters are either sold to other farms or integrated into Coast’s rack-and-bag culture process.

#### Long-line Methods:

With the exception of one remaining bottom culture bed, Coast employs predominately long line culturing and harvesting. Long-line culture utilizes cultch set with spat attached, collectively referred to as seed. Planting for long-line is accomplished by placing the seeded long-line on notched PVC stakes that are arranged in rows on the mudflats (See Sheet 4 of 13 for drawings of the long line layout). The long lines are strung through notches on top of the PVC stakes suspending the oyster seed above the bay bottom approximately 1 foot high. The PVC stakes hold the entire line off the bottom (therefore known as off-bottom culture as opposed to bottom culture). This process occurs at low tide and is done by hand. The oysters are left on the long lines and stakes until they reach marketable size.

Each long line is roughly 100 feet long; oyster seed shells are set in the line approximately one foot apart. Although spacing varies from bed to bed, most beds have five long-lines spaced at 2.5-foot intervals, and a ten-foot space between groups of five lines. Some beds, however, do not have the ten-foot spacing

between groupings.

In an effort to determine the optimum long-line spacing for both ecological and economic concerns, Coast has planted two beds with varying line-spacing intervals as directed by the Mariculture Monitoring Committee (MMC). The MMC is composed of members of Federal, state and local agencies and private groups concerned with mariculture activities in Humboldt Bay. The MMC also includes academic specialists in marine science who advise Coast on certain approaches to minimize impacts to the Humboldt Bay aquatic environment. As guided by the MMC, beds are planted in four parts, or “quarters.” Each quarter has a different line-spacing interval: one quarter is planted with one line and five-foot spacing (1/5), another with two lines and five-foot spacing (2/5), another with one line and ten-foot spacing (1/10) and the last quarter is planted with two lines and ten-foot spacing (2/10). The MMC monitors these beds to aid in future oyster-planting decisions.

The Western Region Aquaculture Consortium (WRAC) research plot is also planted using varied line spacing. The WRAC is funded and administered by the U.S. Department of Agriculture in cooperation with the aquaculture community on the West Coast of the United States. The WRAC bed actually consists of four separate beds, one planted with 1.5-foot line spacing, the second planted with 2.5-foot spacing, the third with 5-foot spacing, and the fourth planted with ten-foot spacing. There is also a WRAC control plot devoid of plantings.

In this permit application, Coast seeks approval for the use of long lines at 2.5 foot spacing on all beds with the exception of the multiple-spaced beds planted at the request of the MMC or as part of the WRAC study.

A crew of six people typically plants long-lines when the tide is low enough to allow the crew to walk on

the bed to be planted. The bags of oysters are normally gathered from the nursery areas at high tide using a skiff and a hook. Generally, the crew floats over a pile of long-line seed and lift bags into the skiff with a hook or, at lower tide, loads the bags by hand into the skiff. The crew then takes the bags to the beds for planting and places them along the edge of a row of empty long-line pipe. At low tide, bags are attached to the long line. Due to the infrequency of adequate low tides, the planting crew works every low tide that they can. Aside from a post-planting monthly inspection, virtually no activity takes place on the oyster bed until harvest. The inspection aims to ensure that the long lines are secure.

Once a long-line bed reaches harvestable size, (usually 18-36 months) and market conditions are acceptable, the bed is ready for harvest. Coast currently uses two different harvesting methods: (1) hand-picking and (2) long-line harvester.

The hand-picking method involves the initial placement of 20-bushel tubs on the bed at high tide using an oyster scow for transport. The tubs are then filled at low tide by hand and placed in the scow. The oysters are brought to Coast’s Eureka plant to be either broken into singles for the shellstock market (live in shell) or loaded onto a truck for shipment to the applicant’s shucking plant in South Bend, Wash. Coast states that, in general, long-line oysters grow larger than oysters grown pursuant to other culture methods.

The long-line harvester method involves positioning a floating scow over the long-line bed at high tide. Individual lines are then pulled onto the floating scow either by hand or by means of a hydraulically operated roller. The latter process is still in a developmental stage and is a very slow method of harvest. Coast states that the long-line harvester does not normally come into contact with the bottom while harvesting long-lines.

Rack-and-Bag Culture: Coast less commonly uses a form of “off-bottom” oyster culture known as the rack-and-bag method. The rack-and-bag method is used primarily for raising oysters for half-shell sales. This requires single seed rather than cultch seed set with multiple oyster spat. As of this writing, Coast maintains two rack-and-bag culture locations on Humboldt Bay, covering 11.23 acres.

Rack-and-bag culture requires the use of a polyethylene mesh bag that is attached via industrial rubber bands to a rack made of steel reinforcing bars, known as “rebars.” These racks are located in East Bay west of EB 6-1 plot. Rack-and-bag oysters are generally much smaller than those grown on long-lines due to the market demand and the limited space provided in rack-and-bag culture methods (Japanese Kumo oysters are often seeded via rack-and-bag culture methods). Coast also uses rack-and-bag methods to allow oysters damaged in the production process to repair themselves and to allow oysters too small for market to gain size. Coast states that this prevents these oysters and shells from going to the landfill, lessening waste disposal.

For rack-and-bag culture, single seed is shipped via overnight delivery from the Quilcene, Wash., hatchery and placed in Coast’s floating upwell system (“FLUPSY”). The FLUPSY is located on the west side of the Samoa navigational channel south of the Simpson wood chip loading dock in Fairhaven (Sheet 1 of 13). The FLUPSY, which is stationary and tied to the dock at the Eureka Boat, is 200 yards from the shoreline in 20 feet of water. The FLUPSY is constructed of aluminum with poly-encapsulated floats for floatation. The components of the FLUPSY include a submerged trough containing a paddle wheel. This trough is surrounded by 16 open wells containing upwell bins. The paddle wheel turns and moves the water out of the trough. In order for the trough to fill, the water must pass through upwell bins containing oyster seed. The bins are removable for maintenance of the seed. The seed

arrives at 1,400 microns and is nursed to roughly 5 millimeters before being placed in bags. As the seed grows in the bag, it is graded and thinned with a mechanical grader on the FLUPSY. The process of grading, thinning, installation and removal of the seed bags occurs 3-4 times per year for a given crop (including the initial stocking of the bag).

Clam Rafts: See Sheet 8 of 13 for drawings of the clam raft structures. The clam rafts are located along the west side of the entrance to Mad River Slough Channel opposite Bird Island, approximately ½ mile north of the Samoa/Hwy 255 bridges, and north of another set of mariculture rafts owned by Mr. Ted Kuiper, which also located on the same shoreline. The rafts are comprised of a series of 10 floating rafts, each 12 feet wide by 20 feet long, anchored over the waters of Humboldt Bay, for the purpose of Manila clam aquaculture. The Styrofoam floats for the rafts are for use in holding clam seed nursery trays. Included is a 27-foot by 20-foot float for washing, sorting, and counting clam seed. No pilings or fill are used for anchoring the floats. Coast states that the rafts are constructed of Chemonite treated fir with sprayed-on polyurethane coated Styrofoam. Each raft has 24 tray wells, which contain seed nursery trays in stacks of about 10 suspended in each well. The seed rafts are in place year round with growth of seed relying on natural phytoplankton. Coast states there are no additions of chemicals, artificial feeds or antibiotics. The clam rafts were previously authorized under Corps Letter of Permission (Section 10 of the Rivers and Harbors Act) Permit No. 22036N dated August 15, 1997, expiring on September 1, 2000. The Corps has included the clam rafts as aquaculture activities to be evaluated under the current August 8, 2003 Corps permit application.

Wet Storage Floats: The Wet Storage Floats are located between oyster plots MR 6-1 and MR Soft 2 at the northern end of Mad River Slough channel. (See Sheet 1 of 13). The floats are anchored in

approximately 20 feet of water in a series three or four 20-foot by 20-foot square wooden frames. Bags of matured oysters recently harvested and ready for distribution to wholesalers are temporarily placed in these bags as wet storage to maintain the oysters' fresh condition.

Dredging of Coast Seafoods Loading Dock: Periodically (usually every few years), Coast dredges by clamshell the loading and unloading dock located at Coast's aquaculture processing plant at 25 Waterfront Drive in Eureka. Coast's barges, scows and other vessels are used to haul oyster aquaculture materials and products to and from oyster and clam culture areas in north Humboldt Bay. The dredged material is taken to upland disposal sites located outside Corps jurisdiction (in past years to landfill sites). On July 12, 1990, Coast obtained a Corps Letter of Permission pursuant to Section 10 of the Rivers and Harbors Act to dredge 550 cubic yards (CY) of sediment accumulated around the dock area. (Permit No. 13770N21B). The area to be dredged is generally 55-feet wide by 100-feet long. The next permit issued by the Corps for dredging at the dock was under Permit No. 21407N21 dated August 2, 1995, to dredge 1,000 CY of silt and sediment and replace three wooden pilings along loading dock. No recent permits have been issued to Coast for dredging the loading dock, but Coast has informed the Corps that dredging may be necessary in the near future. Coast would submit pre-dredge surveys and plans for Corps review either as a separate permit application or amended to the August 8, 2003, permit application.

Proposed Oyster Culture: In addition to the after-the-fact activities listed above, Coast has applied for a Corps permit to plant new long-lines at historic bed locations where previous long-line or ground culture areas have been cleaned off for future planting. Coast does not propose to introduce new long-line or rack-and-bag culture on tidelands not previously used for oyster culture within Coast's lease areas.

Past and Historic Oyster Culture: Coast states that oyster aquaculture has been practiced in various forms by what was formerly the Coast Oyster Company since the 1950s. In the present permit application, Coast states that the nursery areas on Indian Island and Arcata Channel and the Wet Storage Areas have been used since the 1950s. The earliest reference the Corps has specifically to Coast Oyster Company's operations is from a Master of Science Thesis for Humboldt State University (then Humboldt State College) by Waddell (Waddell, 1964). Waddell states, "Japanese oysters, *Ostrea gigas*, were introduced in the early 1950's. By 1955, Arcata Bay became the major area of oyster production in California...Oyster culture as practiced on Arcata Bay is a farm operation in which spat is imported from Japan in the early spring and planted in "seed beds" on the mud flats in shallow areas of the bay...the dredging equipment used by Coast Oyster Company includes a hydraulic dredge and a modified dragline-type "Willa-point" dredge. Both types of equipment pick up eelgrass as well as oysters in the dredging operations....Coast Oyster Company presently returns crushed shell from the processing plant to the seed beds to firm up the substrata and to improve circulation around the "seed" oysters. At the present time (1964), the seed beds are located outside the important eelgrass producing areas." (compare Sheet 1 of 13 with the map from Waddell shown as Sheet 12 of 13).

Coast Oyster Company first obtained Corps Permits for their oyster aquaculture activities under Permit No. 9350-21 dated February 15, 1977. The 1977 permit authorized the deposit of crushed oyster shells periodically in a 1,320 foot by 2,640 foot disposal area in Arcata Bay (See Sheet 13 of 13). The area is approximately in the location where Coast Seafoods currently maintains a combination of Kumo long line, rack and bag, and replanted Pacific long line in the Mad River Slough area (roughly where plots MR 4-1,

MR R & B, MR 1-2 and MR 5-1k are located). The Corps issued a renewal of this same permit and same project location under Section 404 of the Clean Water Act as Permit No. 13770N21 on April 14, 1981. On June 23, 1986, Coast Oyster Company received a 5-year permit for the same activity and location with a time extension issued for four years issued February 2, 1990, expiring June 23, 1994. Coast Seafoods no longer practices the deposition of crushed oyster shell into the 1,320 foot by 2,640 foot area described above. Instead, Coast Seafood continued the practice of circular bottom culture plots used since the 1970's. Historical bottom culture bed locations are shown in Sheet 2 of 13.

For bottom culture, after the seed has been nursed, it is cut from the bags at low tide and placed on a scow by hand. The scow is then towed or propelled (a motorized scow is believed now used with a 90 hp motor) to a seed bed to be planted at high tide. The seed was then shoveled off the scow onto the bed and allowed to grow to a harvestable size. The planting areas for this method of bottom culture have typically been throughout Arcata Bay within Coast's leased tideland area. In recent years, however, the bottom culture has been confined primarily to the areas indicated with culture on them as shown on Sheet 2 of 13. Areas that currently have long-lines, as well as areas removed from production, cleaned off proposed for Pacific Long-Line and ground culture proposed Pacific Long Line, were once used as bottom culture. The remaining bottom culture bed is located at Mad River Channel No. 7-1 (MR 7-1). For the bottom culture areas, the beds and crop were periodically checked for growth rate and general health as well as for any predation effects by bat rays (*Myliobatis californica*), starfish, and other aquatic predators including rock crabs. Coast no longer removes or kills bat rays from bottom culture areas, which are the most susceptible to predation. Bat ray fences were installed around Bird Island and the Mad River Slough area to protect ground culture sites from predation. These fences are in the process of being

removed from the bay by Coast.

Harvesting of bottom-culture beds occurred over a 3-4 year crop cycle. Harvesting of bottom culture areas was typically done by three methods: (1) mechanical dredge, (2) hydraulic harvesting, and (3) harvesting by hand. Coast states that bottom-culture harvesting was, in recent years, most often accomplished by hydraulic harvester. The hydraulic harvester contains a generator, operating controls, and hydraulic apparatus mounted on a floating barge or platform that was towed through the water. The hydraulic apparatus contains a conveyor belt system and arm with a "stinger" and rollers extending below the water surface. The hydraulic harvester was used to harvest large quantities with a crew of two people and harvests mostly the large size oysters. Smaller oysters and oysters less than three years old, as well as residual shells, were screened out mechanically and returned to the bay bottom. On average, the hydraulic harvester harvested approximately one-half acre per day given large area tides and good weather. In a given year it operated on 70-100 acres.

Summary of permit actions: The Corps issued Permit No. 22720N under Nationwide Permit 4 (Fish and Wildlife Harvesting) as an interim authorization in September 1997 to Coast for its overall oyster culture operations while a future individual permit process was being implemented by the Corps. The Corps published Public Notice No. 22720N in November 1997 requesting comments from the public over a 30-day comment period. The Corps permit process was suspended awaiting State authorizations from the California Regional Water Quality Control Board and California Coastal Commission. As of the date of this Public Notice, all of Coast's oyster culture operations (stake, rack-and-bag, and bottom culture) are being processed for after-the-fact authorization. The July 14, 2003, "Cease and Desist Order" issued by the Corps to Coast restricts oyster culture operations to existing seeded beds and does not allow reseeded in

historically used areas or in new tidelands of Humboldt Bay, pending the conclusion of the Corps' permit process.

**3. SITE DESCRIPTION:** Humboldt Bay is a multi-basin, tidal lagoon with limited freshwater input (Moore, 2001). Humboldt Bay encompasses approximately 62.4 square kilometers (15,400 acres) at mean high tide in three geographic segments: South Bay, Entrance Bay and Arcata Bay (North Bay). South Bay is largely included in Humboldt Bay National Wildlife Refuge with the exception of commercial docks and public boating access at Fields Landing on the east shore of the bay. The Entrance Channel is confined by two breakwater levees constructed and maintained by the Corps. The Corps annually dredges several deepwater channels in Humboldt Bay for maritime commercial shipping navigation. The Federal Navigation Channels include the Entrance Channel, Hookton Channel (a.k.a. Fields Landing Channel), Samoa Channel and the Eureka Channel (a.k.a. Inner Reach) located along Eureka's developed shoreline. One-time and recurring maintenance dredging has and in the future would take place at local docks or marinas located outside of the Federal Navigation Channels. These facilities are maintained by private industry or local governments (i.e., fishing industry docks or commercial/recreational marinas). Corps permits are required for dredging areas outside the limits of the Federal Navigation Channels pursuant to Section 10 of the Rivers and Harbors Act. No Federal navigational dredging occurs in Arcata Bay. The limit of Federal dredging ends immediately south of the three Samoa/Hwy 255 bridges over Humboldt Bay. Shallower, subtidal channels continue northward into Arcata Bay. These subtidal sloughs include Mad River Slough Channel, East Bay Channel, Eureka Slough, Fay Slough and Arcata channel, and the secondary and tertiary channels that connect with the larger subtidal channels.

Two freshwater streams drain into brackish and tidal

sloughs in the South Bay: Salmon Creek into Hookton Slough and Elk River into Elk River Slough. In the North or Arcata Bay: Freshwater Creek drains into Freshwater Slough, Rocky Gulch and Washington Gulch both drain directly into the bay as does Jacoby Creek; Jolly Giant Creek drains into Butcher's Slough near the Arcata marsh; and Janes Creek drains into McDaniel Slough. After heavy rains and stream runoff during peak winter storms between mid-November to about mid-March, the entire Humboldt Bay water turns brown from sediment entering from the various freshwater creeks around the bay and from tidal storm surges. Bay waters generally clear after approximately one week after the rains unless the storms are sustained in duration.

**4. SPECIAL AQUATIC SITES:** Humboldt Bay has several key natural plant and unvegetated habitats: salt marsh vegetation, extensive areas of unvegetated mud flats or channel bottoms and the biotically important eelgrass meadow community. The United States Environmental Protection Agency states that wetlands, mud flats and vegetated shallows (including eelgrass) are Special Aquatic Sites (EPA Guidelines for Specification of Disposal Sites for Dredged or Fill Material, Federal Register Part IV, 40 C.F.R. Part 230, Subpart E, December 24, 1980). While salt marsh and mudflats support invertebrate and vertebrate animal species, eelgrass meadows are recognized as having a higher diversity of marine and estuarine animal life.

Eelgrass (*Zostera marina*) is a rooted plant containing horizontal rhizomes and erect leafy shoots extending in the water column. Their roots grow in unconsolidated soft substrate, muddy or mixed mud and sand. Eelgrass performs a function of stabilizing coastal sediment, thus preventing erosion. Phillips, 1984, documented the ability of eelgrass to stabilize bottom sediments. The eelgrass meadow provides direct and indirect food sources for marine food chains and also provides habitat and protection, and



acts as a nursery for many marine species (i.e., Pacific Herring). (*The Ecology of Eelgrass Meadows in the Pacific Northwest: A Community Profile*, Phillips, R.C. 1984. U.S. Fish and Wildlife Service).

Principal animal groups within the eelgrass community include: (1) Epiphytes – organisms living on a plant surface, plant or animal (sessile and mobile); (2) Epibenthic - organisms that live on the surface of the sediment, both mobile and sessile; (3) Infauna – organisms that live buried in the sediments; and (4) Nekton – organisms that live in or above the plant canopy. Most of the species listed above can be sources of food for the higher vertebrate fishes, some of which are valuable commercial and recreational sport fisheries. Humboldt Bay has fish populations similar to other bays and harbors in the Pacific Northwest. At least 57 species of fish were identified in Padilla Bay, a site with significant stands of eelgrass in northern Puget Sound, Wash., (five species of salmon, steelhead, sea run cutthroat trout, smelt, Pacific herring, sole, flounder, and 10 species of sculpins). Humboldt Bay has a similar population, where sport fishermen are seen taking motorboats to Arcata Bay to fish the bay channels for halibut, flounder or sole. In northern Puget Sound (and quite likely in Humboldt Bay), there were 20 species of shoreline fish as well as early stages of pelagic and demersal fishes found in eelgrass meadows. These fish included various sculpins, gunnells, rockfish, greenlings, and cabezon. The Puget Sound study emphasized the juvenile stages, which used the eelgrass meadows for shelter and food for a portion of their life cycle or year round. Open water fishes such as Pacific salmon and young salmon are found in eelgrass throughout the year.

A number of the freshwater streams that drain into Humboldt Bay, including Janes Creek/McDaniel Slough, Jacoby Creek, Jolly Giant Creek/Butcher's Slough, and Freshwater Creek/Freshwater Slough, are or historically have been migratory and spawning corridors for cutthroat trout, coho salmon, steelhead,

and possibly chinook salmon. Although documentation of salmonids in Arcata Bay is sparse, it is believed that migrating salmonids have been recorded being present in eelgrass for shelter and growth functions (Phillips, 1984).

Pacific herring and smelt each deposit eggs on eelgrass and algae. This deposition occurs throughout the Pacific Northwest Region, including Humboldt Bay (Bates, Kenneth, letter to Corps of Engineers, dated 24 February 1999).

In north temperate climates with eelgrass beds, waterfowl (including, but not limited to, black brant and Canada geese) are the primary herbivores on eelgrass. Black brant and Canada geese are common visitors to Humboldt Bay; black brant are an especially important herbivore in eelgrass. At low tide numerous shorebirds, including the great blue heron, pick animals from the eelgrass beds. At the west end of the Samoa Highway 255 bridge, in the Eureka Channel between Woodley Island and the Eureka shoreline, low tide can expose a mixture of mudflats and tidal channels filled with eelgrass as well as exposed eelgrass beds. In August 2003, the birds feeding in this area included great blue herons, white egrets, black crowned night herons, various gulls, brown pelicans, kingfisher and terns (Corps of Engineers observation, August 2003).

Whether it's done for channel-deepening or aquaculture, dredging is an adverse impact to bay habitats. Phillips (Phillips, 1984) states that, of all the possible impacts, dredging poses the greatest threat to the eelgrass ecosystem. Not only are the plants removed, but the entire physical, biological, and chemical structure of the ecosystem is changed through dredging. The extent of the area affected by dredging depends on the tidal range, current strength, and sediment texture in a given area.

Waddell (1964) documented the impacts of harvesting oysters from eelgrass beds in Humboldt

Bay by hydraulic dredges and a modified dragline-type dredge. Mechanical harvesting procedures had several impacts on eelgrass. Under conditions of no dredging, eelgrass biomass declined 38 percent (this may be due to a combination of impacts to Humboldt Bay from logging sediment, agricultural impacts on water quality, residential construction and storm water runoff, heavy rainstorm sediment input, and others) while biomass declined 96 percent after three dredging episodes. In some cases, the eelgrass failed to recover following dredging activities. However, the levels of dredging, the type of dredging and harvesting methods have all declined in volume and intensity since 1964. As of this writing, Coast has discontinued use of its hydraulic harvester. Even without the harvester, several environmental groups and public agencies maintain that oyster aquaculture as it is practiced at the time of this writing (or within the last five years) (1) has contributed to the decline of eelgrass beds; (2) has impacted other bay habitats such as tidal channels; and (3) has exposed unvegetated mudflats.

By this Public Notice, the Corps invites public input and unbiased information that provides a clearer picture of the connections between environmental impacts on Humboldt Bay and aquaculture operations. The Corps, in its Final Environmental Assessment for Coast's oyster mariculture operations, will address the impacts to the Humboldt Bay ecosystem after reviewing comments to the Public Notice.

**5. PURPOSE AND NEED:** The applicant (Coast Seafoods) states that the purpose of their oyster mariculture activity in Humboldt Bay is to grow oysters on a commercial scale. Coast, which has grown oysters in this area since 1956, intends to continue growing and processing oysters in Humboldt Bay indefinitely. Oyster mariculture provides economic and employment opportunities to the communities within the Humboldt Bay environs. The applicant states that oyster mariculture also has a

positive effect on the overall water quality of Humboldt Bay (oysters are filter-feeding animals and require nearly pollution-free and high standards of water quality for optimum oyster growth). To maintain its oyster mariculture operations, Coast employs an operations manager, boat operators, and skilled and unskilled labor. The oyster products are sold locally, nationally and internationally as food consumer products.

**6. POTENTIAL PROJECT IMPACTS:** The Coast off-bottom and bottom culture operations as they currently exist in Humboldt Bay may have the following potential for ongoing impacts on mudflat substrate and eelgrass distribution and density (See Sheet 1 of 13 for current footprint of operations and refer to the tables for acreage): As grow out occurs on the Pacific long-lines, the uniform size, shape, configuration and distribution of the long-line beds may shade eelgrass and retard or prevent photosynthetic processes on eelgrass meadows (however, Coast claims that eelgrass presence has actually increased in some long-line areas, including Kumo beds). The regular row pattern of PVC pipes supporting the longlines has a direct impact on mudflat substrate. Recurring seeding and harvesting activity associated with nursery areas, long-line and rack and bag areas would have a cumulative adverse affect on mudflat and eelgrass. The MMC and WRAC groups are currently studying what the actual impacts are and how areas removed from harvest are recovering from past oyster culture. The rack and bag culture, with the numerous rebar penetrations of the mudflat and uniform coverage of mudflat surface area by the flat bag units, may also affect eelgrass and mudflat diversity in invertebrate fauna. The rack and bag may also affect shorebird predation interactions on invertebrate fauna. Ground culture beds that have been harvested and removed from further seeding still have remnant shell fragments left on the mudflats, which may displace eelgrass beds that were formerly present before ground culture took place at these locations. The actual connection between

oyster culture as it currently exists and adverse or even beneficial impacts on mudflat and eelgrass habitat are still being evaluated by Federal, state and local agencies, MMC and WRAC and university groups. These studies are ongoing. The Corps seeks input from the scientific community on the relationship of oyster culture on not only aquatic habitat but also fisheries and waterfowl/shorebird ecology.

A total of 182.14 acres of Pacific long line plots covers bay mudflat. These plots are mixed with variable densities of eelgrass from sparse to dense and distribution is variable. Actual acreage of eelgrass is not accurately quantified at this time. The Pacific long line beds, being the most dominant structures of Coast's overall oyster culture, can exceed two football fields in length and almost a football field wide. The combination of vertical PVC pipes, long line and clusters of oysters form a footprint or areal coverage of 182.14 acres of mudflat. Direct impacts may occur to marine invertebrates during installation of the structures, crews walking on the mudflat, including daily maintenance or inspections of the bed, and harvest activities including hand-picking. Similar impacts can occur with the Kumo long lines although the smaller size of the Kumo oysters may involve less direct and indirect impacts than the Pacific oyster culture. Kumo oyster culture covers 55.94 acres according to Coast.

The smallest area covered with oyster culture is the rack-and-bag method, with 11.23 acres of mudflat covered on a recurring basis (the cycle of seeding, planting and harvesting). Each rack-and-bag area is roughly 2-3 feet square and appears to shade over and cover mudflat more completely than long-lines – although the total area of coverage is cumulatively smaller than that covered by long-lines.

The nursery areas on Gunther Island and in the Arcata Channel area cover 4.81 acres. The bags of

oyster seed are placed on wooden pallets directly on the mudflat, which is a direct impact on marine invertebrates (marine worms, crustacea, sponges, nudibranchs and other). There is currently no available information that addresses impact or recovery of marine invertebrates after the bags and pallets are removed.

The impacts of the wet storage floats and clam rafts (0.04 acres and 0.31 acres respectively) are minimal as they cover a relatively small area over a deeper water column (subtidal channels) than the oyster culture. Loading and unloading of these structures may involve a small amount of spillover of oyster or clam shells onto the bay bottom. The natural bay mud bottom of Humboldt Bay is saturated with clam and other native and non-native mollusk shell (dredging of almost every part of Humboldt Bay will reveal the mixture of bay mud, sand, silt and broken shells).

The FLUPSY also covers a small area of bay surface water (0.04 acres). The impacts, however, are different in that the mechanical action of the paddle wheel and upwelling circulation would disturb the water column under this structure. There may be turbidity and shell detritus impacts from this activity although the extent of such disturbances is unknown.

There remain approximately 17 acres of bottom-culture plots (one last plot), which Coast intends to remove after harvesting is complete. Bottom culture, once more prevalent than long-line culture, constitutes “fill” under the Corps definition cited above under Section 404 of the Clean Water Act. Bottom-culture beds that have been abandoned and cleaned appear to exhibit a reduced density of eelgrass due to the past placement of oyster shell bags on the surface. Additionally, although marine benthic organisms tend to be smothered by the shell coverage, others may actually thrive amongst the shell (like a hermit crab borrowing a shell). More precise data regarding the extent of recovery may be

borne out in the MMC and WRAC studies.

Another direct impact past associated with bottom culture is depredation on the bat ray, a bottom-feeding fish. Bat rays, which are natural predators in Humboldt Bay, have been known to break the shells of oysters and eat the live oysters. Previously, Coast killed bat rays to prevent oyster losses. Estimates of annual kill are unknown except by anecdotes (McKay, 1996), which state that millions of bat rays have been killed over the past few decades. The killing or even herding of bat rays away from oyster culture areas is no longer practiced. Bat rays were also trawled from oyster culture areas and removed to non-culture portions of the bay. In the process of trawling, some fish popular with recreational fishermen (including halibut and sharks) were removed. Objections to this practice from some groups may, in part, explain Coast's transition from bottom culture to stake and rack-and-bag culture, since bat rays are not known to effectively prey on oysters grown via long lines or rack-and-bag methods.

In the past, Coast also built completely enclosed (or nearly enclosed) bat ray fences to prevent bat rays, starfish, and crabs from entering the oyster areas. The fence was composed of 6-10-foot-tall grape stakes or other stakes spaced about 6-12 inches apart. The remains of this fence still exists in the Mad River Channel portion of Coast's oyster culture area. Coast is in the process of removing this fence from the bay.

Some "cleaned off" areas no longer used by Coast still contain residue such as empty oyster shells, PVC stakes, bags and netting from rack-and-bag operations, bat ray fences, metal rebar, wooden pallets and other apparatus on the mudflats. Coast is still in the process of cleaning these areas. While, individually, the impacts may be minimal, the cumulative effect of the remaining material may prevent or reduce reestablishment of marine invertebrate populations and eelgrass growth.

## **7. MITIGATION FOR OYSTER CULTURE**

**IMPACTS:** Coast states in their August 8, 2003, permit application to the Corps that it would perform the following acts to minimize or mitigate for oyster culture impacts:

- Coast would terminate all bottom culture except that which exists in the WRAC study sites as specified in the WRAC "Research Project Plan and Initial Field Study, August 2001." Coast would not initiate any new bottom culture in its Humboldt Bay operations. Following harvest, all existing bottom-culture beds would lie fallow unless such beds are included within the 300-acre operational footprint discussed above.
- Coast would remove all bat-ray fencing on any of its owned or leased tidelands.
- Coast would not engage in any dredging, hydraulic harvesting, "bed cleaning" by mechanical means, or any other activities with a hydraulic harvester. The only dredging exception would occur at Coast's loading and unloading dock at 25 Waterfront Drive (if approved by the Corps under permit).
- Where feasible, Coast would avoid long-line harvester vessel contact with the bay bottom. To avoid eelgrass impacts from shading, Coast would not anchor the long-line harvester in such way as to shade the same area of eelgrass for a period exceeding 12 hours.
- Coast would not take or harass any marine mammal in accordance with the Federal Marine Mammal Protection Act. Within 120 days of issuance of a Corps Permit, Coast would submit Harbor Seal Avoidance Protocols to the Corps. A qualified biological

consultant would be obtained to identify all harbor seal haul-out or pupping locations in the vicinity of Coast's operations and develop the above Protocols.

- For the term of the current oyster grow-out cycle, for the bed identified as "Sand Island NK," no planting, harvesting or other activity involving human disturbance would occur within 100 meters of the area of Sand Island that is above the mean higher high water (MHHW) line during the Caspian Tern nesting season (April 1 through August 1). If, after the current grow-out cycle for Sand Island NK is complete, Coast proposes to re-plant Sand Island NK. All oyster culture materials would be relocated at least 100 meters away from the MHHW line of Sand Island.
- Coast would not discharge feed, pesticides or chemicals (including antibiotics and hormones) into marine waters.
- Coast would not intentionally deposit shells or any other material on the bay floor. Natural deposition of shells and other materials would be minimized to the maximum extent feasible.
- During the months of December, January and February, Coast would visually survey those beds to be worked on each day prior to harvesting or planting, to determine whether herring (Pacific Herring, *Clupea harengus pallasii*) has spawned on eelgrass, culture materials or substrate. If herring spawning is observed, Coast would (a) postpone for two weeks harvesting and planting activities on those beds where spawning has occurred, and (b) notify the California Department of Fish and Game's Eureka Marine Region Office within 24 hours of observation of herring

spawning.

- By December 1, 2003, Coast would submit to the Corps large-scale maps of Coast's 300-acre operational footprint discussed above, including identification of the locations of long-line culture, rack-and-bag culture, seed nurseries and floating oyster seed nursery (FLUPSY). The full boundaries of all culture beds and nurseries located within the 300-acre operational footprint would be mapped with a GPS unit with a differential correction and a horizontal accuracy of plus-or-minus 3 meters. The maps would be updated any time Coast makes a material change in any of the areas within its 300-acre operational footprint.
- On April 1, 2005, Coast would submit to the Corps the results of the WRAC study of the impacts of long-line culture on eelgrass in Arcata Bay and the impacts of Coast's oyster culture operations on tideflat habitats, invertebrate communities, and benthic habitat. The study results would include a detailed description of analytical methods used to analyze the results of the study and specification of power analysis and statistical tests.
- Coast will obtain substrate elevations in all experimental plots currently being assessed by the WRAC study would submit this data to the Corps within 180 days of issuance of a Corps permit.
- Within 180 days of issuance of a Corps permit for the overall oyster culture activity, Coast would contribute \$7,000 toward the completion of the Humboldt Bay salmonid study being conducted by the U.S. Fish and Wildlife Service.

- As a means of mitigating any additional impacts of its operations on the Humboldt Bay environment, Coast would also undertake the following actions with regard to Coast's owned and leased tidelands in Humboldt Bay to ensure protection of those areas outside of the 300-acre operational footprint: (a) Coast would maintain in place its leases with the Humboldt Bay Harbor, Conservation and Recreation District, the City of Eureka, and the Karamu Corporation. Coast would exercise its renewal options, and satisfy its lease payment and other obligations, in each of the aforementioned leases to ensure that all three leases remain in effect at least to the year 2015. Aside from the 300-acre operational footprint established pursuant to the permit application, Coast would not conduct oyster harvesting activities on any of its leased lands. This cessation of activity is intended to serve as mitigation for any environmental impacts of Coast's operations on that 300-acre operational footprint; and (b) Coast would transfer 50 acres of the tidelands it owns in Humboldt Bay to an appropriate entity to ensure said transferred tidelands are permanently protected from any development. Coast would work with the California Department of Fish and Game to select an appropriate 50 acres for said transfer. This transfer is intended to serve as further mitigation for any environmental impacts of Coast's operations on the 300-acre operational footprint.

**8. STATE APPROVALS:** Under Section 401 of the Clean Water Act (33 U.S.C. Section 1341), an applicant for a Corps permit must obtain a State water quality certification before the Corps may issue a permit. The California Regional Water Quality Control Board (RWQCB), North Coast Region, by letter dated April 25, 2002, issued Section 401 Water Quality Certification for Coast's overall oyster

mariculture operations on Humboldt Bay. On August 8, 2003, Coast submitted a revised permit application to the Corps. The Corps will ask Coast to contact the RWQCB to determine if the revised permit application would be consistent with the RWQCB Water Quality Certification (WQC) or if a new WQC is now required.

Parties concerned with water quality issues associated with this project should write to the Executive Officer, California Regional Water Quality Control Board, North Coast Region, 5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403, by the close of the comment period of this public notice. The RWQCB, in their letter of April 25, 2002, has imposed the following conditions in the Section 401 Water Quality Certification:

- (1) Coast shall not initiate any new bottom-culture operations and existing bottom-culture operations shall be taken out of production or converted to Pacific long lines within three years;
- (2) Coast shall take all reasonable steps to ensure that the Poly Vinyl Chloride (PVC) used in the Pacific long-line culture does not become waterborne debris, and remove any waterborne debris from Coast's shellfish growing areas in compliance with the Mitigation Measure B-6 incorporated into the Mitigated Negative Declaration (California Environmental Quality Act – CEQA); and
- (3) the use of a hydraulic dredge previously used to harvest or "clean" oyster beds including bottom oyster culture is prohibited due to the potential detrimental effects on eelgrass (*Zostera* sp.).

**California Coastal Commission:** Section 307(c) of the Federal Coastal Zone Management Act of 1972, as amended (16 U.S.C. 1456[c]), requires any non-

federal permit applicant for a federal permit to conduct an activity affecting land or water uses in the state's coastal zone to furnish a certification that the proposed activity will comply with the state's coastal zone management program. Generally, no Corps permit will be issued until the state has concurred with the non-federal applicant's certification (see 33 CFR § 320.3[b]). Coast applied in August 2002 for a Coastal Development Permit from the California Coastal Commission ("CCC") for state authorization of its overall oyster mariculture activities in Humboldt Bay. As of this writing, Coast and the CCC are engaged in discussions regarding the extent of the CCC's permitting authority and jurisdiction over mariculture activities in Humboldt Bay.

## **9. COMPLIANCE WITH VARIOUS FEDERAL LAWS:**

**National Environmental Policy Act of 1969 (NEPA):** At the conclusion of the public comment period, the Corps will assess the environmental impacts of the project in accordance with the requirements of the National Environmental Policy Act of 1969 (Public Law 91-190), the Council on Environmental Quality's Regulations at 40 C.F.R. §§ 1500-1508, and Corps regulations at 33 C.F.R. §§ 230 and 325. The final NEPA analysis will normally address the direct, indirect, and cumulative impacts that result from regulated activities within the jurisdiction of the Corps and other non-regulated activities that the Corps determines to be within its purview of Federal control and responsibility to justify an expanded scope of analysis for NEPA purposes. The final NEPA analysis will be incorporated in the decision documentation, which provides the rationale for issuing or denying a Department of the Army permit for the project.

**Endangered Species Act of 1973 (ESA):** Humboldt Bay and its tributaries, historically and currently, is a migration, feeding, rearing, and, to a lesser degree, a

spawning corridor for the Southern Oregon/Northern California (SONCC) Evolutionarily Significant Unit (ESU) coho salmon (*Oncorhynchus kisutch*), the California Coastal (CC) ESU chinook salmon (*O. tshawytscha*), and Northern California (NC) ESU steelhead (*O. mykiss*). The National Marine Fisheries Service (NOAA Fisheries) has listed the coho salmon, chinook salmon and steelhead as threatened in all Northern California coastal streams inclusive of Redwood Creek near Orick and Humboldt Bay and its tributaries. Humboldt Bay and its tributaries are also designated by NOAA Fisheries as critical habitat for coho salmon. In addition, Humboldt Bay and its tributaries are designated as Essential Fish Habitat (EFH) pursuant to Section 305(b)(2) of the Magnuson-Stevens Fisheries Conservation and Management Act for chinook salmon, coho salmon, and a substantial variety of marine and estuarine fish that are known to be present in Humboldt Bay. The Corps will initiate formal Section 7 consultation with NOAA Fisheries pursuant to the Endangered Species Act of 1973, as amended (16 U.S.C. 1531, *et seq.*) and its implementing regulations (50 C.F.R. § 402), regarding potential impacts to listed salmonids, critical habitat, and Essential Fish Habitat from Coast's oyster mariculture operations. The Section 7 consultation process must be concluded prior to the issuance of any Department of the Army Permit for the Coast's project. In addition to consulting NOAA Fisheries, the Corps will also contact the U.S. Fish and Wildlife Service (USFWS) about possibility of ESA consultation regarding the endangered tidewater goby (*Eucyclogobius newberryi*) and other listed species that may be present in Humboldt Bay and the oyster culture areas.

**National Historic Preservation of 1966 (NHPA):** A Corps archaeologist will conduct an investigation of impacts to cultural properties listed or eligible for listing on the National Register of Historic Places identified as a result of a cultural resources assessment of the permit area. This assessment will involve review of published and unpublished data on

file with city, tribal, State and Federal agencies for the subject area. Indian Island (also known as Gunther Island) in Humboldt Bay is the site of the Wiyot village *Tolowat*, a National Historic Landmark discernible by a major archaeological deposit (**CA-HUM-67**). The Corps will assess Coast's overall oyster mariculture activities, including possible direct or indirect impacts on the resource noted above. The Corps will also solicit comments from the Wiyot Tribe (Table Bluff Reservation).

**10. COMPLIANCE WITH THE 404(b)(1) GUIDELINES:** Projects resulting in dredged or fill material discharges into waters of the United States must comply with the Guidelines promulgated by the Administrator of the Environmental Protection Agency under Section 404(b)(1) of the Clean Water Act (33 U.S.C. 1344(b)). An evaluation pursuant to the Guidelines indicates that Coast's oyster mariculture project is dependent on location in or proximity to waters of the United States to achieve the basic purpose of oyster growing and harvest.

**11. PUBLIC INTEREST EVALUATION:** The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. Evaluation of the probable impacts that the proposed activity may have on the public interest requires a careful weighing of all relevant factors. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. This general balancing process dictates the Corps' decision on whether to authorize a proposal, and the conditions under which it will be allowed to occur. The decision will reflect the national concern for both protection and utilization of important resources. All factors that may be relevant to the proposal must be considered, including the cumulative effects thereof. Among the relevant factors are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural

values, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

**12. CONSIDERATION OF COMMENTS:** The Corps is soliciting comments from the public, Federal, State and local agencies and officials, Indian Tribes, and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

**13. SUBMISSION OF COMMENTS:** Interested parties may submit in writing any comments to the Corps concerning this activity. Comments should include the applicant's name, the number, and the date of this notice and should be forwarded so as to reach this office within the comment period specified on page one of this notice. Comments should be sent to the District Engineer, Attn: Regulatory Branch at the address shown on the head of this Public Notice. Pursuant to Corps policy, the Corps will forward any comments that object to the issuance of the permit to the applicant for resolution or rebuttal. Any person may also request (in writing, within the comment period of this notice) that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for



holding a public hearing. Additional details may be obtained by contacting the applicant whose address is indicated in the first paragraph of this notice, or by contacting David Ammerman of our Eureka Field Office by telephone at 707-443-0855 or by E-mail at: David.A.Ammerman@spd02.usace.army.mil.